Converging and Diverging Governance Mechanisms: The Role of (Dys)Function in Long-term Inter-organizational Relationships

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Abstract

This paper explores the dynamic interplay of formal/informal governance mechanisms, in terms of functional and dysfunctional consequences for both sides of the dyad, in long-term inter-organizational relationships. Using two longitudinal cases of UK defence sector procurement (warship commissioning) we move beyond notions of complementarity and substitution in governance towards a more nuanced view where the governance mix of inter-organizational relationships can be convergent or divergent. Our findings, showing that relationships can exhibit functional and dysfunctional behavior simultaneously, lead us to conclude that mismatches in governance mechanisms can be positive as well as negative. In building a context dependent understanding of governance we both summarize the (dys)functions associated with formal and informal governance mechanisms, and explore their impact on relationship exchange performance over time.

Keywords: Inter-organizational relationships, performance, contracts, longitudinal research.

Introduction

It is widely accepted that inter-organizational exchange performance is, in part, a consequence of the effective coordination of formal and informal governance mechanisms (e.g. Poppo and Zenger, 2002; Argyres and Mayer, 2007; Faems *et al.,* 2008; Guérard *et al.,* 2013). Although the comparative functionality of different governance mechanisms has been extensively documented, their dynamic interplay (Zheng *et al.,* 2008; Cao and Lumineau 2015) and, critically, their relative (dys)functionality over time, remains less well understood. For example, formal governance has positive functionalities, such as the coordination and control of the exchange between two parties, but can also lead to dysfunctions, such as overregulation and hold-up problems (Ring and van der Ven, 1994; Gulati and Singh, 1998; Anderson and Decker, 2005). Our study therefore addresses the following research question: *How do formal and/or informal governance mechanisms make functional and/or dysfunctional contributions to exchange performance over time?*

Moreover, there is demand for a greater '*context-dependent understanding*' of governance, including the exploration of exchange governance in complex and uncertain operating environments (Filochev and Nakajima, 2010, p. 593). Our study seeks to contribute to this stream of literature through analysis of two extended inter-organizational relationships, enacted by the Ministry of Defence (MoD) and its partnering organization during the commissioning and support of UK naval ships from 1990 to 2010. Our longitudinal study follows two inter-organizational relationships in the defence sector which span nearly 20 years (Langley, 1999; Pettigrew, 1990). Based on rich primary and secondary datasets including 40 interviews with senior managers, this paper offers a rare longitudinal and dyadic perspective of governance mechanisms interplay, extending prior studies conducted at one point in time and presented from one organization's perspective (Vlaar *et al.,* 2007).

The dynamics of our study demonstrate that governance mechanisms are complementary when, but only when, they are functional for both parties. Because we explore functions and dysfunctions over time we provide a dynamic perspective that makes three contributions to extant governance mechanisms literature. First, we demonstrate that governance mechanisms can deviate from each other, i.e. one form of governance can be functional while the other is dysfunctional at the

same point in time. This offers a more nuanced perspective on the dynamics of governance mechanisms in inter-organizational relationships and advances extant studies (e.g. Poppo and Zenger, 2002; Cao and Lumineau, 2015). Second, we show that (dys)functions of governance can converge or diverge between parties in an exchange, so that what is functional for one party might be dysfunctional for the other party. While we might expect this of formal governance (Williamson, 1985), it is more surprising to find that this also applies to relational governance as extant studies has vastly emphasized the positive functions of relational governance (e.g. Zaheer *et al.,* 1998; Cao and Lumineau, 2015). Third, we suggest that performance is a function of the management of (dys)functions within each form of governance over the relationship lifetime. We reveal not only outcomes in terms of exchange performance, but more critically the causes of change in performance through combinations of (dys)functional contractual and relational behavior during each relationship phase.

The paper is organized as follows: the conceptual background explores formal and informal governance mechanisms, their functional and dysfunctional performance implications and reflects on their dynamic interplay. Our methods are described in terms of research approach, data collection and analysis. The fieldwork presents two longitudinal cases of defence sector inter-organizational relationships followed by conceptual development and discussion. The paper concludes with theoretical and practical implications, limitations, and avenues for future research.

Conceptual background

Extant literature distinguishes between governance related to the political, social and legal environment of an economic system, and that related to arrangements "*between economic units that govern the ways in which these units can cooperate and/or compete*" (Davis and North, 1971, p. 6-7). The latter concept is referred to as the governance structure, distinguishing between classical market, hybrid contracting, and hierarchy. By contrast, governance mechanisms refer to the formal and informal rules of exchange between partners (North, 1990; Zenger *et al.,* 2002; Vandaele *et al.,* 2007). Although defined as fields of research in their own right, literature which combines governance

mechanisms, degrees of formalization and inter-organizational relationship performance is scant. A common association with governance typically involves the corporate sector, where managerial choices grant control and verify institutional legitimacy towards achieving financial performance for shareholders (e.g. Poulsen, 2008; Bhagat and Bolton, 2008), engage in mergers and acquisitions activity, stock market prediction and company board composition (Goergen *et al.,* 2008), and regulate markets through contracts or organizational hierarchy (Coase, 1952). Yet, the study of governance goes beyond formalization, i.e. organizational structure, contract design and regulation (Williamson, 1975; 1996; Macneil, 1978), and includes more agency-based or behavioral aspects of inter-organizational relationships such as the role played by trustful relations over time (Dekker, 2004; Lui, 2009). Taken together, identifying combinations of governance mechanisms which improve long-term performance is the subject of considerable debate, particularly where performance is defined in terms of an extended and beneficial relationship exchange between two or more organizations (Gulati and Nickerson, 2008; Zaheer *et al.,* 1998). Hence, we develop our theoretical underpinnings from the performance-based perspective of governance (Leiblein, M. 2003; Coles *et al.,* 2001; Williamson, 1996), combining inter-organizational relationships (Gulati and Singh, 1998; Dyer and Singh, 1998) and the (dys)functionality of governance mechanisms interplay (Poppo and Zenger, 2002; Cao and Lumineau, 2015). Our starting point is that previous studies have distinguished between two types of governance mechanisms: formal or contractual, and informal or relational.

Formal approaches, typified by legal contracts set up with very specific terms and clauses in order to avoid conflicts of interpretation (Luo, 2002), can foster greater efficiency, and reduce costs by clarifying activities between contracting parties and by mitigating potential opportunism (Nooteboom, 1996; Zaheer and Harris, 2006). As it is practically impossible to foresee every possible future contingency, effective contracting also includes clear principles and procedures on how to best manage potential future contingencies (Stipanowich, 1998). This in turn relies on high degrees of programmability of tasks and behaviors and the measurability of outcomes *ex-ante* (Das and Teng, 2001).

Informal approaches are derived from - and reinforced by - trust, commitment and social capital between partnering organizations (Bachmann and Inkpen, 2011; Child and Möllering, 2003) acting as behavioral guidelines that enforce social obligation during the exchange (Heide, 1994; Cannon *et al*., 2000). Here, future contingencies are addressed by flexibility and increased information sharing procedures between partnering organizations (Zaheer and Harris, 2006). Relational governance mechanisms often rely on partnering organizations having "*greater levels of confidence in the predictability of each other's actions*" (Gulati and Singh, 1998: 790). Yet, establishing and nurturing relational governance mechanisms can be time- and cost-consuming (Bachmann, 2001; Larson, 1992).

Function and dysfunction in governance mechanisms

In general terms all governance mechanisms can have a range of positive 'functionalities'; from safeguarding interests, clarifying roles and responsibilities and multi-party coordination, to adaptation, learning and sense-making. Equally however, governance mechanisms can have a range of negative 'dysfunctionalities' that act as potential impediments to exchange performance and the overall inter-organizational relationship. For example, even the most well-intentioned formal control efforts can be derailed by exploitation (arising from weaknesses such as incomplete contract design or intellectual property rights: Williamson, 1975; 1996) or coordination failure (Malhotra and Lumineau, 2011), particularly when uncertainty, complexity, and transaction duration increases (Ring and Van de Ven, 1994). Prior studies highlight the negative effect of incomplete contracts, leading to conflicts and disagreements between partnering organizations when interpreting the contract (e.g. Bernheim and Whinston, 1998; Baiman and Rajan, 2002). Likewise, formal governance mechanisms may lead to more *'cumbersome, overregulated, and impersonal processes'* (Beck and Kieser, 2003, p. 794) that, in turn, may hinder creativity and flexibility because of over-regulated and prescriptive procedures (Lusch and Brown, 1996; Weber and Mayer, 2011). Similarly, informal governance mechanisms can create their own dysfunctions; from 'cognitive lock-in' and relational inertia (potentially causing organizations to honour obligations which may conflict with the pursuit of self-interest and risk avoidance: Gulati, 1995; Leenders and Gabbay, 1999). Other studies draw out the potential loss of

objectivity, sub-optimal information search, and poor decision-making, leading to missed market opportunities such as new technology innovations (Uzzi, 1997; Grayson and Ambler, 1999; Anderson and Jap, 2005). Table 1 provides an overview of identified functions and dysfunctions in governance mechanisms.

< Insert 'Table 1' about here >

The dynamic interplay of governance mechanisms

The relationship between these different types of governance mechanism (Cao and Lumineau, 2015; Roehrich and Lewis, 2014) is more contested. Some authors argue that contractual and relational governance mechanisms act as substitutes (e.g. Cavusgil *et al.,* 2004; Gulati, 1995; Sitkin and Roth, 1993); contracts obviate the need for setting up and maintaining social relationships whereas, conversely, trusting relationships facilitate governance without the costs and complexity associated with contracts (Adler, 2001; Ring and Van de Ven, 1994), while others present evidence to suggest the complementary nature of formal/informal governance mechanisms (e.g. Das and Teng, 2001; Luo 2002; Poppo and Zenger, 2002; Klein *et al.,* 2005; Zheng *et al.,* 2008; Cao and Lumineau, 2015). Bachmann (2001), for example, suggests that lengthy contract negotiations and detailed contracts are not necessarily a signal of distrust. Clearly defined contracting may actually support the development of long-term, trusting relationships by narrowing '*the domain and severity of risk to which an exchange is exposed and thereby encourage cooperation and trust*' (Poppo and Zenger, 2002, p. 708). Moreover, relationship continuity and ongoing cooperation may be vital in addressing contractual gaps. As Möllering (2005, p. 291) concludes, trust and control do not merely co-exist, but enter a *'reflexive relationship to each other when they form the basis of positive expectations'*. It is important to note that, although such observations are clearly anchored in a processual view of governance, a full discussion of the interplay of governance mechanisms (and their relative (dys)functions) over time goes beyond simple discussions of whether formal and informal mechanisms act as substitutes or complements. To date few studies have fully investigated the dynamic characteristics of this interplay and its consequences for exchange performance. Most studies of governance and exchange performance have considered individual governance mechanisms (e.g. Vanneste and Puranam 2010;

Caldwell *et al.,* 2017). Important exceptions include Faems *et al.,* (2008), and Dimitratos *et al.,* (2009) who studied the incentives and performance monitoring schemes adopted by small-medium Greek firms seeking to collaborate with international partners. They identified distinct patterns of governance 'mix' and suggested that combinations of formal and informal cooperation were associated with improved performance outcomes. This dualistic view is supported by Luo's (2002, p. 903) examination of joint ventures in dynamic markets, arguing that the use of contracts and building cooperation are *'not substitutes but complements in relation to... performance'*.

Our ex-ante understanding of the performance implications of exchange (micro) governance (Leiblein, 2003; Coles *et al.,* 2001; Williamson, 1996), stems from Cao and Lumineau's (2015, p.15) observations – based on a significant meta-analysis of 149 studies – that "*contracts, trust and relational norms jointly improve satisfaction and relationship performance*". In other words, we begin our conceptualization with the assertion that formal (contractual) and informal (relational) mechanisms work together (in some, as yet poorly understood, combinations) to deliver performance. Figure 1 provides a simple illustration of governance interplay where the starting point is a functional relational and contractual relationship between two organizations ('w') which can either remain static or switch to become dysfunctional over time. The shift from function to dysfunction therefore can be represented as one of three alternatives, either: functional relational and dysfunctional contractual governance ('x'), or dysfunctional contractual and relational governance ('y'), or dysfunctional relational and functional contractual governance ('z'). We note that positions 'w' and 'y' represent convergent positions, while 'x' and 'z' represent divergent positions, where convergence is defined by a match between the functionality of governance mechanisms.

< Insert 'Figure 1' about here >

Figure 1 therefore suggests that long-term relationships will display elements of both formal and informal governance, and that these will vary over time and across the dyad. Our paper goes beyond notions of complements and substitutes towards a more detailed understanding of their functions and

dysfunctions across dyadic relationship lifecycles, thus offering a fine-grained analysis of inter-organizational relationship governance.

Methodology

To engage with how governance mechanisms interact, playing functional and dysfunctional roles in achieving intended performance outcomes, a longitudinal multiple case study approach was adopted (Langley, 1999; Berends *et al.,* 2011; Canato *et al.,* 2013). The multiple case study approach was chosen as appropriate for examining poorly understood phenomena (Yin, 1994) and where research is used to probe deeply into processes by collecting data of complex, ambiguous, real-time, and retrospective interpretations of events and organizational contexts (Langley, 1999; Drori and Honig, 2013). The purpose of our cases is not to show the frequency of occurrence of a specific phenomenon, but to highlight cases of theoretical and practical importance (Eisenhardt, 1989; Stuart *et al.,* 2002).

Research setting and case selection

The research setting for our study is the acquisition of new ship assets for the UK Royal Navy, and our unit of analysis is the dyadic relationship between the Ministry of Defence (MoD) and a private contractor: a large multinational who played the lead industrial role on both investigated cases. We examine long-term inter-organizational relationships that are designed to deliver performance outcomes. Specifically, we undertook a chronological study of all major classes of warship platform before selecting two relationships for further examination. Our sampling logic follows Pettigrew's (1990) suggestion to select polar types, resulting in the platforms for a small patrol ship and large warship being selected for investigation. The patrol ship was generally regarded by the joint public-private project team at the time as a successful venture in terms of achieving a high performance outcome by delivering a high number of days (i.e. >300) per year each ship was available to go to sea. By the same measure, the larger warship was not seen as successful, delivering only around half the expected days (i.e. <150). In other words, the two cases were deliberately selected based on performance criteria, where we wanted to explore the impact and roles of (dys)functional governance

mechanisms while controlling for performance outcomes. In this sense, we are less concerned with direct comparisons between the two cases but from the theoretical insights that might be derived from both with regards to the interplay of governance mechanisms (dys) functions over time.

Each relationship was investigated from both the perspective of the buyer (the MoD) and the same private contractor during the commissioning process (i.e. design, build, launch, and sea trials) and subsequent maintenance activities. The contractor's role was as prime industrial partner, typically providing around 30-50 staff for the duration of the project dependent on ship size, which included coordination of specialist equipment suppliers. The MoD deployed similar staff numbers, performing a management liaison role with industry in their defence equipment acquisition and in-service support offices near Bristol (UK). The cases are linked in that they both follow the introduction of new procurement policy in the UK defence sector termed Contracting for Availability (CFA) intended to shift supplier focus from 'simple' asset design and build to delivery of ongoing performance outcomes such as sea-going availability and through-life ship support (MoD, 2005). In this paper performance is measured in two ways. First, (objective) asset performance was quantified by the number of days per year a vessel spends at sea over the time spent harbor-side undergoing maintenance. Second, the richer (and inevitably subjective) *exchange performance* was captured via the primary data collection process; summing assessment of both formal contractual documentation with opinions regarding relational mechanisms such as critical incidents, levels of trust, sense of partnership, degree of information exchange and resolution of problems (Gulati and Nickerson, 2008).

Data collection and analysis

Fieldwork involved 40 interviews between 60 to 120 minutes duration (see Table 2, Appendix), with key stakeholders including naval personnel (e.g. Captain, Commander) and civilian contractors, ranging from senior managers (e.g. Managing Director, Chief Engineer) to technical specialists (e.g. Support Manager, Engineer). We ensured diversity of interviewees from partnering organizations who had knowledge of the relationships under analysis, different organizational hierarchy levels and across the relationship's history, following recommendations by Berends *et al.,* (2011). The findings were supported by secondary data and observations based on five site visits and a range of reports (e.g.

Nott, 1981; SDR, 1998; Croft *et al.*, 2001; MoD, 2005; 2006; 2007; NAO, 2011; Rankin, 2013; Jones *et al.,* 2014). This helped to address validity and reliability problems and to overcome the bias introduced by any respondents' memory lapse or distortion (Eisenhardt and Graebner, 2007). A typical interview commenced with questions regarding the interviewee and organizational background. Interviewees were asked to talk about capabilities, performance, coordination, contractual arrangements, trusting relationships and the defence environment.

Data collection and analysis activities were conducted in parallel. We began with an open coding approach, analyzing transcripts, reports, and notes line-by-line, and identifying key categories of interest (e.g. contracts, trust, performance, functions and dysfunctions). As a second step, we deployed axial coding, aiming to build relationships between categories (Strauss, 1987). Following this, we deployed a selective coding strategy focusing on key codes driving our analysis and sense-making processes. The findings are structured following an issue-organized analytical chronology (Berends *et al.,* 2011). This approach to presenting longitudinal data facilitated the analysis of the dynamics, relationships of functions, dysfunctions, governance mechanisms, and exchange performance over time, resulting in a clearer overall relationship development story. Detailed stories were constructed from the fine-grained data we collected to achieve high accuracy and to go beyond surface description to elicit the generative mechanisms behind their progression (Van de Ven, 2007).

Presentation of findings

Case 1 Patrol ship: early phase (1997-1999)

Our first case examines the functions and dysfunctions of governance mechanisms across all phases during the commissioning of a new patrol ship built for the MoD by the contractor, seeking to expand its portfolio. The case provides an early illustration of CFA or logistical support as public policy shifted towards a more collaborative approach with the private sector (SDR, 1998). The move to transform public-private relationships towards being smarter, more efficient and better connected

began in the 1990s (King, 1990; SDR, 1998), with the MoD seeking to engage more closely with industry to spread the cost and risk of new equipment programs (Sanderson, 2009).

In the late 1990's the MoD had five ageing coastal patrol ships providing a low level of service availability. All were difficult and expensive to maintain yet the ministry could not get approval from the government for their replacement (RN Commander, 2009). During a private dinner in 1997 between the public Director of Shipping and a senior executive from the contractor, it was revealed by the shipbuilder that it had *"A hole in its order book"* and wanted to replace the current ships (Contractor Manager, 2006). The contractor was eager to get involved in maintenance and repair activities: *"We wanted to get into support"* and saw great potential for development of its maritime logistical support capability, proposing that three new vessels could do the work of the original five, using a leasing mechanism to save the MoD payment upfront (DE&S, 2009).

The functional aspects of contractual governance are represented by the clear aims of the MoD who wanted more responsibility for support to be devolved to private industry. There was recognition by senior policymakers that *"A significant move must be made to make warships cheaper"* (RN Commander, 2009; SDSR, 2010). The CFA initiative originated from government civil servants who were inspired by Defence Industrial Strategy policy to leverage more private sector capability (MoD, 2005). Responsibility for providing warship support services such as stores, engineering training and IT systems was to be given to industry. A model was conceived as an aid for contractors, which started with traditional support and progressively involved greater responsibility (e.g. holding spare parts), towards full contracting for capability as the highest level. Although collaboration on the new patrol ship required a fully binding contract prepared by marine lawyers, increasing emphasis was placed on partnering principles with industry (MoD, 2005; MoD 2007b). The MoD proposed that it engaged with the contractor on the basis of "*No blame, no surprises*" and adopted performance-based payment using key indicators to gauge level of service (DE&S, 2009). Relations between the ministry and contractor were initially mutually explorative and aspirational. The MoD intended for CFA to be an opportunity to remove bureaucracy, free up resources and improve communications. The contractor reciprocated by recognizing the MoD's predicament of

"*Having no money*" and proposed a solution to provide new ships with "*No colossal outlay*" (Contractor Manager, 2006). Using the novel leasing concept, agreement was reached to provide a complete package of design, construction, and long-term support.

Mid phase (1999-2003)

Dysfunctional behavior in the relationship began to emerge in 1999 with the MoD insisting on putting the patrol ship contract out to tender: *"We did not want one systems integrator dominating"* (MoD, Snr Manager, 2006). This apparent reversal away from the proposed new practices effectively delayed the program by several years which in turn "*Burnt a bit of the relationship*" (Contractor Manager, 2006). Decisions in the past made by the MoD over procurement of naval equipment on ships had lacked innovation by focusing on price, and meant the ministry had developed a reputation for short-termism. The old coastal patrol ships still in service were now having a detrimental effect on new repair practices because the contractor felt they were cheap and had been "*Procured with no thought as to how [*they were*] to be maintained in the future*" (MoD Commander, 2009).

The commissioning process of the patrol ship after it was finally built in 2001 was a complex combination of contractual control and watershed events, with the MoD adopting more integrative and less rigidly defined working patterns (SDR, 1998; MoD, 2005): "*We transferred significant risk to the supplier. I can see no other way than CFA of realizing this level of capability…you can cut away whole chunks of bureaucracy*" (MoD Manager, 2009). Several dysfunctional aspects of relational governance also emerged in the relationship. One issue stemmed from deep-rooted beliefs based on past experience by the contractor that the MoD's procurement processes were fundamentally bureaucratic. A legacy of conservatism persisted towards contracting which meant some senior defence personnel lacked a sense of vision. For example, the response by one government minister to the lease style contract was that it was "*Novel and contentious*" (Contractor Manager, 2006). Further, when the patrol ships were commissioned, the cost of holding inventory items such as engines was passed directly to the contractor. Hence the first year of operations under the new CFA support contract was at times "*Very painful…with arguments*" (Contractor Support Manager, 2011, *ibid*). Engineers from the contractor tried to expedite outstanding ship defects with copies of the contract

fastened to their clipboards. The logic of partnering had not been sufficiently defined in the agreement (MoD, 2007b), resulting in the initial operating period being "*A nightmare*". Conflicting understanding over CFA implementation created intense and difficult interactions, compounded by deeply held beliefs by contractor personnel based on their past experience of working with the MoD.

Late phase (2003-2005)

As the new patrol ship entered its second year of operation under CFA, more formal roles and responsibilities became defined in an internal policy document. The creation of an integrated project team was also introduced by the MoD as an attempt to bring all relevant public and private sector stakeholders together to manage projects more effectively *"From cradle to grave*' (Moore and Antill, 2001, p.179). The policy described the behavior expected from both organizations during their participation on the project (e.g. 'No surprises') and to maximize teamwork. The MoD decided to increase the emphasis on partnering principles to improve the CFA support process. Appropriate behavior from all personnel on the team was now being presented in terms of supporting "*Mutual benefit, openness and trust, exchange of information and ongoing innovation"* (MoD, 2005). During this phase when the team came up against obstacles, they tried to develop a standard procedure alongside the contract through "*Trial it, learn the lessons, and record it by introducing it into the contract"* (Contractor Support Manager, 2011, *ibid)*. It was established over time that while the contract could be used as a means to frame problems such as the development of revised metrics, there was also the possibility of "*Putting the contract to one side*". Whilst recognizing an agreement had to be reached between the two organizations, trying to adhere too closely to the contract was obstructive for the contractor trying to deliver on metrics defined exclusively by the new working arrangements. A further 18 months were required for the contractor's engineers to stop old habits such as expediting, and to put the contract aside while consulting with the team. At times, contractor personnel could "*See no other way*" to transfer risk from the MoD to the private sector (Contractor Manager, 2009). Although leasing heralded the start of more flexible working between the public and private organization, CFA did not suit older ships already in service, particularly those with obsolescent or faulty equipment requiring constant attention. Given that CFA yielded high levels (i.e.

95%) of sea-time availability for the patrol ship, both the MoD and contractor considered the new method of working together to be successful.

In summary, the early relationship phase of the case can be described as mutually explorative and aspirational, with the contractor providing considerable input to engage with the MoD to secure the new contract (Table 3). Yet attempts to implement the new contract during the mid phase resulted in intense and often conflicting interactions as the contractor tried to work around MoD bureaucracy and delay caused by the insistence on tendering. The late phase saw a renegotiation in the relationship and changes in the way the contract was applied with freer information exchange and clearer definition of responsibilities between the two organizations. The recovery of the relationship in the late phase, where functional formal and informal behavior was matched in both organizations, is significant because it contrasts markedly with the next case. Here the same contractor embarks on a similar program with the MoD, but for a significantly larger design of vessel.

< Insert 'Table 3' about here >

Case 2 Large warship: early phase (2003-2006)

This case illustrates the first large warship of its type to be built for several decades in the UK. Almost five times the size of the patrol ship and equipped with the latest electronic ship safety, navigation, and missile guidance systems, first steel was cut in 2003. The proposed construction and support mechanism was *"A very bold initiative"* that adopted Contractor Logistics Support (CLS), based on CFA, but where the contractor also takes full control over all on-board systems (Commander RN, 2009). The same contractor as in the patrol ship won the contract to design and build the new warship primarily on the basis of past performance. The MoD's plan was to incentivize the contractor to design and build a class of vessel that was cost effective in supporting through-life maintenance over longer periods (i.e. 3-5 years) than in the past (i.e. 1 year), using an integrated support solution.

Despite concerns by some senior MoD personnel who did not want *"One firm dominating",* the same contractor was selected to lead the warship's development (MoD Senior Manager, 2006). This addition to the MoD's growing list of capital programs represented *"Another go at in-service*

support" and on a significantly larger scale (MoD Commander, 2009). The challenge was to further reform existing structures and policy for sharing tasks between the public and private sectors, and collectively to identify personnel suited to the team. The CLS initiative helped steer long-term support objectives, with the contractor being encouraged to develop costs and milestones. The MoD decided to fully outsource logistical support to the private contractor, with fewer yet higher value contracts awarded. Admiralty naval headquarters agreed to the idea of a private contractor defining its own costs despite being *"Nervous that such an innovative support solution might not be able to deliver 24/7 support, especially in a conflict zone"* (Contractor Support Manager, 2011). When the first warship was nearly complete, the MoD controversially tried to withdraw the support contract, effectively reneging on an initial agreement because of escalating costs (PAC, 2009). The contractor argued successfully that given the level of investment by both organizations, it should retain the contract and deliver the ship's support as planned. Despite a period of contractual uncertainty, the early phase is characterized by plans for a privately led warship support program (Reid, 2006), meaning the contractor had to deliver core elements of the warship's infrastructure and systems. This practice was heralded at the time as resulting in *"Closer relationships with both the MoD and subcontractors"* (Contractor Snr Manager, 2012, *ibid*). Adopting more responsibility over the whole life of the warship meant the contractor increasingly saw itself as brokering supplier relationships and encouraging learning through higher levels of interaction, where *"Relationships are key."* However, the reality of the situation materialized somewhat differently.

Mid phase (2006-2009)

When the true scale of the task facing the warship CLS team became apparent, formal coordination mechanisms involving the contract were relaxed by the MoD and a more flexible approach was adopted towards the contractor. Information technology management skills had to be learned from first principle in order to achieve any progress with integrating the warship's new systems: *"The support team should have started with a larger pool of people"* (Contractor Support Manager, 2011). During initial sea trials, further difficulties began to emerge over quoting for the vessel's support costs for a year, much less the 3-5 year period originally specified. Expected seagoing performance was not

being met by the new warship due in part to the high levels achieved by the patrol ship. The sheer size and complexity of the warship was a major factor in the difficulties over predicting logistical support requirements, despite a decade of the MoD encouraging smarter acquisition and supplier partnerships (Moore and Antill, 2001). Although heavily involved in other types of military support, the contractor had no cross-over mechanisms for sharing experiences between other relevant sea, land, or air force support teams. During the now extended trial period, the contractor's engineers on the warship began to understand there were *"No shortcuts...we had to apply a lot more rigor with people tweaking systems for 6-12 months until [*they*] reached maturity"* (Contractor Support Manager, 2011).

The engineers responsible for delivering core elements of the support program realized there was *"A massive load of learning"* needed to complete the contract. Management began to understand the importance of *"More planning for big platforms…more strategic, less tactical thinking"* (Contractor Snr Manager, 2012, ibid). It was felt that public sector structures were to blame where *"Everything the MoD does is vertically driven...by department or platform."* Despite concerns over rising costs and delays, the relationship was sufficiently established for the two organizations to negotiate and agree on the contractor retaining full control of the support contract. The difficulties were now alarmingly apparent, yet a level of understanding remained between the MoD and contractor, as indicated by the comments of one manager describing the steps being taken to try to resolve a dispute during the now protracted development period: *"The contract is there, but if we run to it all the time that is failure"* (Contractor Manager, 2006).

Late phase (2009-2011)

Although the warship was by now semi-operational and capable of going to sea for short periods, it was falling further behind in the commissioning process, with available days at sea running at only 50 per cent. The contractor was forced to apply a corrective action approach rather than planned procedures. Managers were surprised at the shortness of the allotted ship systems trial periods originally provided by the MoD. The original vision of the warship as a model for platform based through-life support failed because *"It was too hard to define the requirements sufficiently such that they could be contracted against"* (Contractor Support Manager, 2011). Dysfunctional aspects in the

relationship began to re-emerge, despite agreement from the MoD for the contractor to continue with the program. There was also indecision on the part of other public departments such as Fleet Headquarters on the level of responsibility that could be granted to the contractor. This in turn reinforced the view of the contractor of the vertically-driven nature of the MoD, and the sense of a cumbersome and overregulated public sector. In one example, the MoD's policy on preferred sovereignty status of UK manufactured equipment became increasingly impractical because of the legacy of industrial decline. Increased dependence on overseas suppliers meant the warship was prone to further delays, implying original planning was inadequate.

The late phase of the warship was characterized by poor performance and increasingly entrenched positions from both organizations. Despite participation in several high value defence contracts and numerous initiatives on collaborative partnerships, the contractor was inconsistent in terms of how it worked with other suppliers. Although official policy emphasized mutual benefits, the contractor's approach to specialist suppliers remained short-term and transactional, where *"Sub-contractors don't get paid…if they don't deliver!"* (Contractor Manager, 2010, *ibid*). The contractor had also become suspicious of defence public sector methods of administration: *"MoD procurement is always simplistic and over-arching"*. The new style of performance-based support contracts required more scope for customization by the project team than was actually provided for by the MoD. Yet the MoD's view was to get private firms *"To be more flexible and manage their supplier's core capabilities…a core element of this is turning engineers into program managers"* (MoD Senior Manager, 2006). One manager at the contractor admitted that where private firms were expected to lead, further learning and development was required: *"We are behind the curve in procurement capability"* (Contractor Support Manager, 2011).

The relationship between the MoD and contractor can be summarized during the early phase of the new warship as an ambitious and bold collaboration seeking to build on earlier success (Table 4). Yet, by the mid-phase the contractor realized it had misjudged levels of complexity and resource requirements. As the program falls further behind schedule, exchange performance declines between the two organizations, with a culture of blame developing over expectations not being met.

< Insert 'Table 4' about here >

Analysis and conceptual development

This section examines governance (dys)function interplay and the effect on exchange performance, drawing on within-case analysis (Tables 3 and 4) and cross-case comparison (Table 5) to aid our conceptual development.

In the conceptual background we underlined the view that extant studies do not offer a coherent picture of the relationship between governance mechanisms (Cao and Lumineau, 2015). Some authors argue that formal and informal governance mechanisms are substitutes (Sitkin and Roth, 1993; Gulati, 1995; Gulati and Nickerson 2008) where contracts and control replace the need for setting up and maintaining social relationships, others support their complementary nature (Das and Teng, 2001; Poppo and Zenger, 2002) where relationship continuity and ongoing cooperation support formal procedures and drive contractual refinements.

Governance (dys)function interplay

At a macro level, our study supports the view that formal and informal governance mechanisms are complements where we find evidence of both mechanisms at all stages of the relationship lifecycle. However, analysis of their (dys)functions over time, and across both sides of the dyad, provides evidence of micro-level dynamics that have remained hidden so far. Our discussion highlights these dynamics and their potential contribution to theory development.

First, the additional lens of (dys)functions demonstrates that the two types of governance mechanism are not complementary, in the sense that their combination is not uniformly positive. In fact, our findings show that the combinations can be negative, as dysfunctions in one type of governance mechanism can lead to dysfunctions in the other. Moreover, their relationship can be temporarily decoupled whereby, for instance, one party might have functional formal governance and dysfunctional informal governance within the same time period. We therefore suggest that the two governance mechanisms might be better described as 'semi-coupled'. Our cases demonstrate that both

formal and informal governance are required within inter-organizational relationships (thus supporting prior studies; e.g. Poppo and Zenger, 2002; Cao and Lumineau, 2015), but that their (dys)function or functionality might change over time, which so far has attracted very limited conceptual and empirical attention in prior literature.

Our analysis therefore shifts the focus from the existence of a certain mechanism of governance towards its performance. It is particularly interesting that we find situations in which one governance mechanism is performing well (functional) but that the other has started to have negative effects (dysfunctional) and that the switch between these two modes can occur at any point in the relationship lifecycle. For example, we find evidence of early shifts to dysfunctions in the case of the warship, and late shifts to functions in the case of the patrol ship, suggesting functions and dysfunctions of governance are dynamic and independent. Hence our first proposition:

> *Proposition 1: Formal and informal governance mechanisms can become functional or dysfunctional over time, and their movement is not connected to movement in the other.*

A second dynamic found in our cases suggests that governance can be convergent, such as that in the early phase of the patrol ship, or divergent, such as that in the mid phase of the warship (see Tables 3 and 4). In other words, what is functional for one side of the dyad can be dysfunctional for the other party (and vice-versa). Our approach views the role of function and dysfunction in terms of their collective interplay (Lui *et al.,* 2009; Lumineau and Henderson, 2012), and as such commensurate to the potential effect of governance mechanisms over time. While the formalization of functional contractual control and trustful relations are well recorded in governance literature (e.g. Berends *et al.,* 2001; Dyer and Chu, 2003), we observed specific instances of formal and informal dysfunction in our cases involving both organizations. Examples of formal dysfunctional behavior include the MoD's limited awareness (Uzzi, 1997) or lack of planning over the impact of transferring risk to the private sector, and senior personnel missing the opportunity (Granovetter, 1985) to work on the new contract. Informal dysfunctional behavior was demonstrated by the contractor in terms of a tendency towards ingrained habits and cognitive lock-in (Gulati, 1995), as reflected in the unsubstantiated belief that the buyer might revert to more short-term, cost-based working structures. Formal

dysfunction also includes the inability to coordinate a task due to contract incompleteness (Macneil, 1980), such as the contractor's view that "*It was too hard to define the requirement*". Other informal dysfunctions emerge through not honoring obligations to others (Uzzi, 1997; Gulati, 1995) i.e. "*Sub-contractors don't get paid if they don't deliver*", which the contractor would not have accepted as appropriate behavior towards itself. As an interesting example of unintended consequences, formal mechanisms put in place by the MoD to enable the relationship (e.g. defined roles, procedures, procurement policy) ultimately worked against it because they were considered "*Too cumbersome*" by the contractor (Beck and Kieser, 2003). Although considered here as stand-alone examples, we suggest they are incorporated into the dynamic interplay of functional and dysfunctional behavior, and developed in future studies of governance mechanisms:

> *Proposition 2: Formal and informal governance mechanisms can be convergent or divergent, where what is functional for one side of the dyad can be dysfunctional for the other.*

Impact on exchange performance

Using functions and dysfunctions, differences are observed between the two cases when considering impact on exchange performance. Where both suffer a decline in performance, only one, the patrol ship, eventually recovers to achieve 90% sea-time availability, with the warship failing to meet expectations. Table 5 presents a cross-case analysis of the two cases, focusing on the patterns of (dys)function from the mid phase onward after both experience a decline in performance.

< Insert 'Table 5' about here >

In terms of exchange performance we observe that the patrol ship displays elements of both formal and informal governance mechanisms, with combinations of functional and dysfunctional behavior (Table 5). For example, exchange performance is the sum of using a new type of contract to frame problem solving (i.e. function: coordination and control), and a decision by the MoD to put the contract out to tender, signaling a reversal away from agreed working practices which effectively *"Burnt a bit of the relationship"* with the contractor (i.e. dysfunction: conflict). A difficult first year

for the project team with the new contract meant work had to be expedited: *"Very painful…with arguments…a nightmare"*. During this period, the MoD and contractor were blinded by assertions around the need for risk to be transferred to industry, and an underlying belief that the public sector was fundamentally bureaucratic i.e. *"You can cut away whole chunks of bureaucracy."* The combination of (dys)functions which ultimately led to high exchange performance for the patrol ship case involved not only functional behavior such as roles and responsibilities being formally defined (i.e. planning), but also emphasis on informal functions, including partnering (communication & information sharing), creation of a project team to co-develop procedures, and establishing the value of *"Putting the contract to one side"* (reduction of formal control). While the above may seem intuitive, it is interesting to note the simultaneous switching from function to dysfunction, and the combinations of matching or opposing behavior patterns between the MoD and contractor.

In comparison, although the warship case also demonstrates instances of opposing formal and informal (dys)functions, unlike the patrol ship case, low exchange performance is the result of a preponderance of conflicting, sub-optimal, over-regulated and deterministic behavior (Table 5). While there were aims to reform policy around task sharing, with plans to *"Incentivize the ship designer and builder"* (i.e. function: planning), the warship was also perceived as *"A very bold initiative"* because of the level of responsibility for long-term logistical support being granted to the contractor (function: codification and sense-making). As the project began to fall behind schedule and the full scale of the task became apparent, the corrective action approach adopted was unrealistic (dysfunction: deterministic), MoD procurement policy was increasingly considered as outdated (overregulation), and conflict began to arise from the MoD's indecision over what level of responsibility should continue to be granted to the contractor: *"Everything the MoD does is vertically driven!"* Whereas the patrol ship project team adapted their behavior, the warship team's personnel lacked the skills and resources required for the task (sub-optimal search): *"We're behind the curve in terms of procurement capability".* Further, despite concerns over rising costs, the MoD became increasingly entrenched, continuing to grant the contractor full control (dysfunctional: binding). Ultimately, exchange

performance fails on the warship project as the team becomes overwhelmed: *"It was too hard to define the requirement"* (dysfunction: blinding) and increasingly critical of the MoD.

The ability to gauge exchange performance, particularly mid phase, represents a pivotal point in any relationship development. In the two cases, both comprise opposing functional and dysfunctional views over contract workability and the importance of maintaining a constructive relationship. Yet, ultimately, the warship relationship fails due to indecision and unrealistic contractual expectations hampering development, with the result that dysfunctional behavior emerges. Our third proposition therefore defines the combined effects of dynamic interplay and governance mechanisms on relationship exchange performance:

> *Proposition 3: Relationship exchange performance is a function of the management of (dys)functions over time, rather than their nature as complements or substitutes.*

Adopting a systematic approach to the interplay of governance mechanism (dys)functions enables more informed discussions around the nature of long-term relationships and their impact on exchange performance. Our study reveals not only outcomes in terms of exchange performance (i.e. low, high), but more critically the causes of change in performance through combinations of (dys)functional formal and informal behavior during each relationship phase. Thus a richer, more engaging narrative (Weick, 1995) can be woven around participant organizations to capture events as they unfold in time, aided by our function-dysfunction matrix style analysis, which provides for a more structured and game theoretic perspective to the study of governance (Jones *et al.,* 1997). Using this approach we identify matching and opposing combinations of governance dysfunctions, similar to the dialectic perspective of Vlaar *et al.,* (2007) or meta analytic investigation by Cao and Lumineau (2015), revealing an interesting twist in the interpretation of our findings. Generally the received wisdom where both organizations do not agree on governance mechanisms is a decline in performance. However, our conclusions drawn from the notion of governance (dys)functions are less delineated in terms of impact on exchange performance. Both our cases start with initially matching functional formal and informal behavior, but then suffer a decline during their mid phase. Yet, this decline is not

determined directly by whether each organization's governance mechanism (dys)functions match or oppose the other, but by the cumulative effect on the relationship as a whole.

Adopting a longitudinal, three phase (i.e. early, mid, late) perspective also means our findings provide some evidence of the factors involved in inter-organizational relationship recovery during complex programs. Comparing the two cases, high performance was achieved where formal and informal governance mechanisms were considered together, for instance through definition of roles and responsibilities, co-creating policy on team behavior, freer information exchange at the outset, framing of problems using the contract, and shared process development. We argue that relationships can withstand and even benefit from some degree of dysfunctional behavior, illustrated by the MoD nearly reneging on its agreement on the warship support contract, although the prolonged effects of dysfunction over the long-term ultimately leads to a decline in exchange performance.

Conclusion

This paper conceptually and empirically explores the roles of governance mechanisms and the dynamic interplay of functions and dysfunctions over time in complex inter-organizational relationships (Guérard *et al.,* 2013; Cao and Lumineau, 2015). We argue although varying degrees of formalization is important when managing long-term relationships, organizations should learn not only to contract or build up trusting relations, but consider both together as semi-coupled in terms of the impact such interplay has on exchange performance. The received wisdom is where both organizations do not agree on the governance mechanisms to use, the result is a negative impact. However, our conclusions suggest that mismatches can be positive as well as negative, and it is the overall relationship atmosphere that determines the direction of the (dys)functions. In building a context dependent understanding of governance, we both uncover the (dys)functions associated with formal and informal governance mechanisms, and explore their impact on relationship exchange performance over time.

The practical implications for managing contracts are also raised. Cost-cutting is often cited as the reason that complex contracts are outsourced and public organizations rely more on private

suppliers to deliver outcome-based support solutions (Sherman, 2013; Jones *et al.,* 2014). Such thinking shifts the challenge of long-term relationships and associated skills development squarely onto the shoulders of contractors. Increasing dependency on the private sector and the potential for negotiation begs questions around the enforcement of contracts, learning and relationship recovery in an increasingly limited market of skilled organizations. In order to maintain exchange performance in long-term inter-organizational relationships therefore, we argue managers must learn not just how to engineer solutions, but identify pathways through the dynamic interplay of governance (dys)functions.

In terms of limitations, our study focuses on two inter-organizational relationships over time to offer a more fine-grained perspective on governance interplay. We acknowledge that our findings may not be generalizable (or not so explicitly as presented here) outside the defence maritime setting. We suggest that further research examines the 'tipping points' and managerial interventions that can prevent dysfunctions from emerging. Researchers could also explore the impact of the wider market environment and network on the focal inter-organizational relationship and governance mechanisms interplay. For instance, future studies should explore the impact of foreign ownership on governance and performance and the impact of differences in formal/regulatory institutions (e.g. Cummings *et al.,* 2017). Moreover, future studies may also explore how do external agents such as governments, NGOs and regulatory institutions influence the interplay of governance mechanisms? And, are certain functions or dysfunctions emphasized by the wider stakeholder network? While these long-term relationships provided an ideal setting for investigating concepts such as governance over time, further research should investigate (dys)functions and the interplay in short-term relationships on an inter-personal and team level.

< Insert 'Appendix: Table 2' about here >

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Figures and Tables

Table 1. Function and Dysfunction in Governance Mechanisms

Governance Mechanism	Intended Function	Potential Dysfunction
Formal	*Coordination & control* Decomposition of tasks and alignment of activities to reduce impact of individual biases and judgement errors (Gulati and Singh, 1998; Klein Woolthius *et al.,* 2005). Intended to mitigate negative behaviour and opportunism (Carson *et al.,* 2006; Lui, 2009; Möllering, 2005) Clarification of roles and responsibilities (Lui, 2009). *Planning* Increases the perceived predictability of social actors' future behaviour and activities (Gulati and Singh, 1998; Poppo and Zender, 2002; Stipanowich, 1998). *Codification & sense-making* Offers codification of behaviour; leads to degrees of certainty and stability; focus attention and reflection upon issues (Klein Woolthius *et al.,* 2005; Das and Teng, 2001).	*Deterministic* Inhibiting creativity, flexibility and innovation due to overregulation and prescribing process in detail (Ring and Van der Ven, 1994; Mintzberg, 1994; Nooteboom, 1999; Volberda, 1998). Unilateral dependence, hold-up problems, conflict and disagreement due to incomplete/inaccurate contracts (MacNeil, 1980; Anderson and Decker, 2005). *Overregulation* '*Cumbersome, overregulated, and impersonal processes*' (Beck and Kieser, 2003, p. 794; Weibel 2007). *Conflict* Can lead to conflict where processes and procedures are incomplete/inaccurate (Luo, 2002; Malhotra and Lumineau, 2011).
Informal	*Communication & Information Sharing* Generates and maintains social interaction (Bachmann, 2001; Das and Teng, 2001; Dyer and Singh, 1998; Gulati, 1995). *Reduction of formal control costs* Lubricant of economic exchange' and coordination mechanism (Dyer and Chu, 2003; Inkpen and Curral, 2004; Knights *et al.,* 2001; Schepker *et al.,* 2014). *Reduction of uncertainty* Increases the perceived predictability of social actors' future behaviour (Luhman, 1979; Nooteboom, 2002).	*Suboptimal search* Limited awareness of market developments or opportunities from quality of information used in decision (Locke, 1999; Grover *et al.,* 2006). *Binding* ('Cognitive lock-in'; 'relational inertia') Can lead to honouring obligations that may conflict with the pursuit of self-interest; risk avoidance (Uzzi, 1997; Gulati, 1995; Poppo *et al.,* 2008). *Blinding* ('Loss of objectivity') can lead to missed market opportunities (e.g. new innovations) by focussing on too narrow a set of criteria (Anderson and Jap, 2005; Granovetter, 1985; Villena *et al.,* 2011).

Table 3. Patrol ship governance (dys)functions over the relationship lifecycle

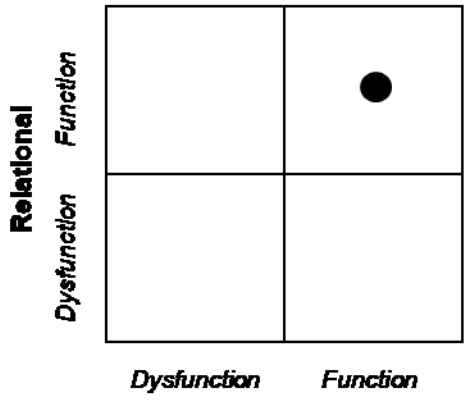
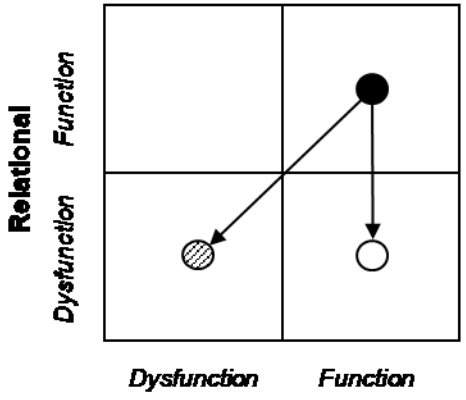
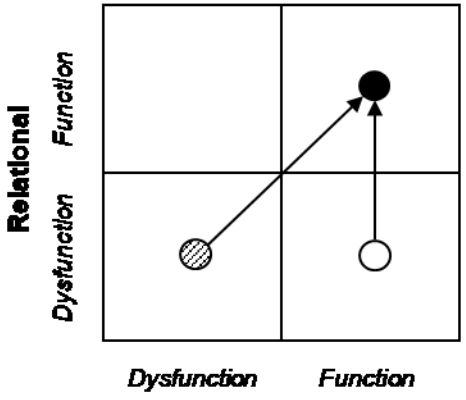
Early phase	Mid phase	Late phase
		
MoD — Evidence Contractual Governance: **Functional** • Preparation of a fully binding contract • Performance-based payments proposed • Devolution of risk Relational Governance: **Functional** • Emphasis on partnering principles • A *'no blame, no surprises'* approach • Creation of a transformation model	MoD — Evidence Contractual Governance: **Functional** • Adopts standard MoD practice of putting contract out to tender in the market • Focus on price reduction Relational Governance: **Dysfunctional** • Tendering puts relationship on hold • Apparent reversal away from proposed new working practices	MoD — Evidence Contractual Governance: **Functional** • Roles & responsibilities formally defined in internal policy document • Contract used to frame problems Relational Governance: **Functional** • Creation of an integrated project team • Increased emphasis on partnering • Definition of appropriate behaviour
Contractor — Evidence Contractual Governance: **Functional** • Proposal for a novel ship leasing concept • Provision of a complete support package • No initial outlay for the customer Relational Governance: **Functional** • Recognised the MoD's predicament • Exploited a business opportunity out of an informal social exchange (i.e. dinner)	Contractor — Evidence Contractual Governance: **Dysfunctional** • Cost implications of inventory from new contract passed to contractor • Contract initially used for expediting Relational Governance: **Dysfunctional** • Belief that MoD is bureaucratic • Partnering logic not sufficiently defined • Arguments during first year of operation	Contractor — Evidence Contractual Governance: **Functional** • Co-development of standard procedures during ship trials alongside contract • Acceptance of revised metrics Relational Governance: **Functional** • New working practices required the unlearning of old habits • Recognition of need for trust & openness
Alignment: **Convergent**	Alignment: **Divergent**	Alignment: **Convergent**
Performance: **High** *Evidence*: Mutually explorative and aspirational relations	Performance: **Low** *Evidence*: Delay to the project of several years Intense and conflicting interaction	Performance: **High** *Evidence*: Achievement of 95% ship sea-time availability Responsibilities and behaviour clearly defined

Table 4 Warship governance (dys)functions over the relationship lifecycle

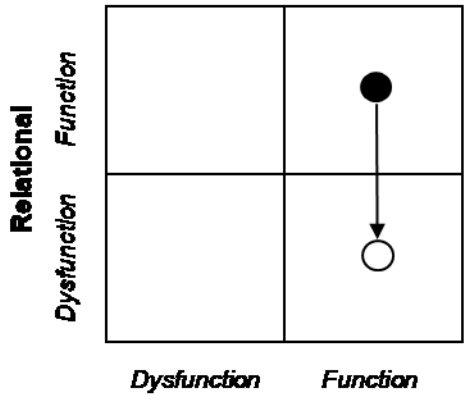
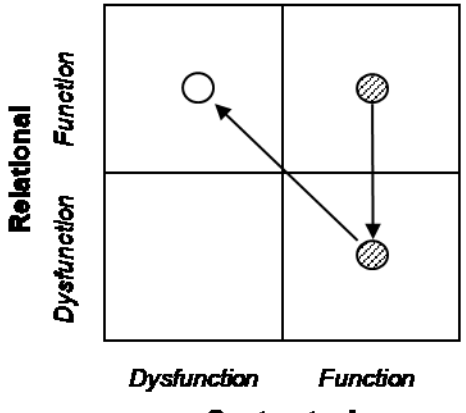
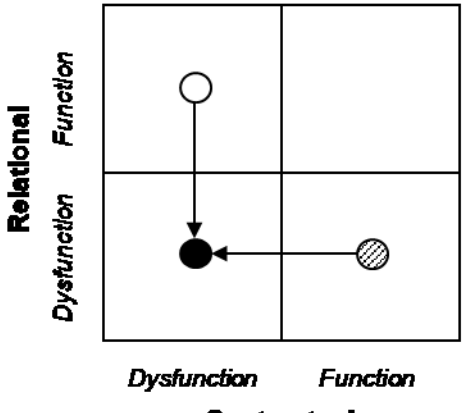
Early phase	Mid phase	Late phase
		
MoD ○ Evidence Contractual Governance: **Functional** • Bold initiative to outsource system control • New policy of 'prime contracting' • Contractor selected on past performance Relational Governance: **Dysfunctional** • Concerns by senior staff that such an innovative solution might not deliver • Attempt to withdraw the support contract	MoD ○ Evidence Contractual Governance: **Dysfunctional** • Contract did not reflect the true scale of the task until trials commenced • Difficulties over estimating support costs Relational Governance: **Functional** • Formal coordination mechanisms relaxed • Adoption of more flexible approach when difficulties began to emerge	MoD ○ Evidence Contractual Governance: **Dysfunctional** • Indecision on the level of responsibility which can be given to contractor • Outdated policy on UK parts procurement Relational Governance: **Dysfunctional** • Poor project performance means MoD adopts an entrenched position • Claims contractor needs more managers
Contractor ◍ Evidence Contractual Governance: **Functional** • Wins ambitious design and build contract with in-service support contract to follow • Plans to reform existing structures Relational Governance: **Functional** • Agrees to take on greater responsibility • Sees itself as brokering relationships and encouraging learning in the supply chain	Contractor ◍ Evidence Contractual Governance: **Functional** • Recognition of the role of planning and rigorous testing until product maturity • Support contract retained despite issues Relational Governance: **Dysfunctional** • Suspicion emerges for public sector methods of administration • No cross-over learning mechanisms	Contractor ◍ Evidence Contractual Governance: **Dysfunctional** • On-board system commissioning process continues to fall behind schedule • Corrective action rather than planned Relational Governance: **Dysfunctional** • Poor treatment of specialist suppliers • MoD seen as cumbersome and MoD procurement as simplistic
Alignment: **Divergent**	Alignment: **Divergent**	Alignment: **Convergent**
Performance: **High – medium** Evidence: An ambitious and bold collaboration Early concerns: attempt to withdraw contract	Performance: **Medium** Evidence: Rising costs and delays to the project Some understanding and cooperation remain	Performance: **Low** Evidence: Achieves only 50% ship sea-time availability Expectations of performance are not met

Table 5 Cross-case analysis

Patrol ship (high exchange performance)		**Warship** (low exchange performance)	
Function: *Coordination & control*	Contract is used to frame problems where *"Performance is linked to payment, continuous improvement [*and*] maintaining operational availability."* (MoD, 2009).	***Function:*** *Planning*	Aim to further reform existing structures & policy around task sharing. *"The plan was to incentivise the ship designer and builder."* (C. Sup. Mgr, 2011, ibid).
Planning	Roles and responsibilities are formally defined in an internal policy document.	*Codification & sense-making*	Seen by all on the project as: *"A very bold initiative"* because of adopting: *"Whole platform, through-life contractor logistics support".*
Codification & sense-making	Analogy made with other industrial practices: *"It's just like leasing a car ... no colossal outlay."* (C. Mgr, 2006).		
Communication & information sharing	Emphasis on partnering based on *"Mutual benefits, openness and trust, no blame…no surprises."* (MoD, 2009).	*Reduction of formal control*	Formal mechanisms relaxed in favour of a more flexible approach: *"The contract is there, but if we run to it all the time that's failure."* (C. Mgr, 2006).
Reduction of formal control	Creation of a project team which co-developed procedures.	*Reduction of uncertainty*	The demands of the project and need for higher level of interaction meant a clear understanding that: *"Relationships are key"* (C. Snr Mgr, 2012).
	Team establishes the value of *"Putting the contract to one side."* (C. Sup. Mgr, 2011).		
Reduction of uncertainty	Agreement over task delivery i.e. *"[*Contractor*] provision of whole ship support and MoD provision of contractor management"* (MoD, 2009).		
Dysfunction: *Conflict*	Difficult first year for the team of working with the new contract which was initially used for expediting i.e. *"Very painful…with arguments…a nightmare."* (C. Sup. Mgr, 2011).	***Dysfunction:*** *Deterministic*	Adopting a corrective action approach rather than planned procedures meant *"A massive load of learning"* which was ultimately unrealistic for the project (C. Snr Mgr, 2012, ibid).
	Decision by MoD to put the contract out to tender signals a reversal away from agreed working practices. The resultant delay *"burnt a bit of the relationship"* (Contractor Mgr 2006)	*Overregulation*	Outdated procurement policy: *"More planning for big platforms [*is needed*] "More strategic, less tactical thinking."*
		Conflict	Indecision over responsibility to be given to the contractor: *"Everything the MoD does is vertically driven."*
Blinding	Strong assertions around risk transfer: *"We transferred significant risk to the supplier. I can see no other way than CFA of realising this level of capability."* (MoD, Mgr, 2009).	*Suboptimal search*	Team personnel lacking in skills required for the task: *"We're behind the curve in procurement capability."* (C. Sup. Mgr, 2011).
	Underlying belief that the public sector is fundamentally bureaucratic: *"You can cut away whole chunks of bureaucracy!"* (MoD, Mgr, 2009).	*Binding*	Despite rising concerns over cost MoD adopts an entrenched view, continuing to grant contractor control over the contract.
		Blinding	Project team becomes overwhelmed: *"It was too hard to define the requirement" (*C. Mgr, 2011), and critical of MoD: *"MoD procurement is always simplistic and over-arching!"*

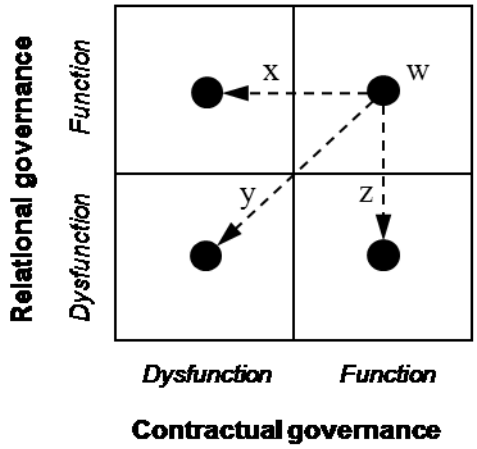


Figure 1. Illustration of governance interplay over time

Table 2, Appendix. Research interviews (2005-2012)

No.	*Interviewee position or rank*	*Organization*	*Month / Yr*
1	Senior advisor to MoD	DERA	05.05
2	Commander, Flight training	Royal Navy	06.05
3	Commander, Administration	Royal Navy	06.05
4	Lieutenant, Procurement	Royal Air Force	07.05
5	Senior staff officer (Retired)	Royal Navy	10.05
6	Executive director	DPA	11.05
7	Communications	DLO	12.05
8	Director, Supply chain	Contractor	03.06
9	Chief Engineer	Contractor	04.06
10	Chief Engineer	Contractor	04.06
11	Manager	Contractor	05.06
12	Director	DPA	05.06
13	Director	Contractor	05.06
14	Director (Retired)	Contractor	06.06
15	Director, Logistics	DLO	06.06
16	Project Manager	Contractor	06.06
17	Director	Contractor	06.06
18	Senior Manager	DPA	08.06
19	Consultant	Contractor	03.07
20	Managing Director	Defence association	11.07
21	Business Development Manager	Contractor	07.08
22	Business Director, Aerospace	Contractor	08.08
23	Director	Contractor	10.08
24	Defence Research	RUSI	01.09
25	Captain	MoD / Royal Navy	02.09
26	Technical Director	Contractor	04.09
27	Commander	MoD / Royal Navy	05.09
28	Turbine Group Leader	MoD	07.09
29	Ship Support Director	MoD	07.09
30	Managing Director	Contractor	08.09
31	Manager	MoD	12.09
32	Chief Executive	Defence association	12.09
33	Manager	Contractor	02.10
34	Admiral	Royal Navy	02.10
35	Procurement / Design	Contractor	01.11
36	Submarine Support	Contractor	04.11
37	Support Manager	Contractor	11.11
38	Senior Manager	DE&S	03.12
39	Assistant Director Procurement (Rtd)	DPA / DE&S	04.12
40	Senior Manager Ship support	DE&S	04.12

Key to abbreviations:

MoD	Ministry of Defence
RUSI	Royal United Services Institute
DERA	Defence Evaluation & Research Agency
DPA	Defence Procurement Agency
DLO	Defence Logistics Agency
DE&S	Defence Equipment and Supply